IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below for the convenience of the Examiner. No further amendments are made herein.

1. (previously presented) A method for computer-supported error analysis of at least one of sensors and actuators in a technical system, the error analysis being in a form of a finite state description that exhibits states of technical system, the method using a computer, comprising:

a) determining a finite state description of the technical system for an error case of an error of at least one of a sensor and an actuator in the technical system;

b) determining a first set of achievable states for the technical system without errors using the finite state description;

c) determining a second set of achievable states for the technical system having an error, using the finite state description;

d) forming a difference set from the first set and the second set; and

e) determining result conditions from the difference set, the result conditions meeting prescribable conditions.

2. (previously presented) The method according to claim 1, wherein method steps a) through e) are implemented for all possible errors of sensors and/or actuators in the technical system.

3. (previously presented) The method according to claim 1, wherein failure probabilities are allocated to the sensors and/or actuators; and wherein the error analysis ensues taking the failure probabilities into consideration.

4. (previously presented) The method according to claim 1, wherein method steps b) and c) ensue according to a method of model checking.

5. (previously presented) The method according to claim 1, wherein a finite state description of a process implemented by the technical system is included in the method.

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6. (previously presented) The method according to claim 1, wherein the finite state description of the process is realized by a finite automat.

7. (previously presented) The method according to claim 6, wherein the finite state description is realized by a finite automat formed as a binary decision diagram.

8. (previously presented) A method for rapid prototyping of a technical system, the system having at least one of sensors and actuators in a technical system, the prototyping being in a form of a finite state description that exhibits states of the technical system, the method using a computer, comprising:

determining a finite state description of the technical system for an error case of an error of at least one of a sensor and an actuator in the technical system, using the finite state description;

determining a first set of achievable states for the technical system without errors using the finite state description;

determining a second set of achievable states for the technical system having an error, using the finite state description;

forming a difference set from the first set and the second set; and

determining result conditions from the difference set, the result conditions effecting prototyping of the technical system.

9. (previously presented) The method error diagnosis of a technical system, the system having at least one of sensors and actuators in a technical system, the error diagnosis being in a form of a finite state description that exhibits states of the technical system, the method using a computer, comprising:

determining a finite state description of the technical system for an error case of an error of at least one of a sensor and an actuator in the technical system, using the finite state description;

determining a first set of achievable states for the technical system without errors;

determining a second set of achievable states for the technical system having an error, using the finite state description;

forming a difference set from the first set and the second set; and

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determining result conditions from the difference set, the result conditions effecting error diagnosis of the technical system.

10. (previously presented) A method for generating critical test cases for a commissioning and a system test of a technical system, the system having at least one of sensors and actuators in a technical system, the generating being in a form of a finite state description that exhibits states of the technical system, the method using a computer, comprising:

determining a finite state description of the technical system for an error case of an error of at least one of a sensor and an actuator in the technical system;

determining a first set of achievable states for the technical system without errors, using the finite state description;

determining a second set of achievable states for the technical system having an error, using the finite state description;

forming a difference set from the first set and the second set; and

determining result conditions from the difference set, the result conditions effecting the generation of critical test cases.

11. (previously presented) A method for preventive maintenance of a technical system, the system having at least one of sensors and actuators in a technical system, the method being in a form of a finite state description that exhibits states of the technical system, the method using a computer, comprising:

determining a finite state description of the technical system for an error case of an error of at least one of a sensor and an actuator in the technical system;

determining a first set of achievable states for the technical system without errors, using the finite state description;

determining a second set of achievable states for the technical system having an error, using the finite state description;

forming a difference set from the first set and the second set; and

determining result conditions from the difference set, the result conditions meeting effecting the preventive maintenance.